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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,449	09/30/2003	Masaki Matsui	2224-0222P	2602

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EXAMINER	
YAMNITZKY, MARIE ROSE	
ART UNIT	**PAPER NUMBER**
1774	

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/673,449	MATSUI, MASAKI	
	Examiner	Art Unit	
	Marie R. Yamnitzky	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper ~~No(s)/Mail Date~~ *rec'd 30 Sep 2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on October 01, 2002. It is noted, however, that applicant has not filed a certified copy of the Japanese application as required by 35 U.S.C. 119(b).

2. The preliminary amendment filed September 30, 2003, which incorporates the foreign priority application by reference into the specification, has been entered.

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not state that the person making the oath or declaration has reviewed and understands the contents of the specification, including the claims, as amended by the preliminary amendment filed September 30, 2003. See MPEP 608.04(b).

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because it does not accurately describe the compound of formula (I) as described in the remainder of the application. The abstract defines R^1 as a C_{1-6} alkyl group, and R^2 and R^3 as hydrogen atoms or C_{1-6} alkyl groups, but elsewhere in the application, the alkyl groups are not limited to alkyl groups having 1-6 carbon atoms.

The abstract is also objected to because it includes a phrase which can be implied (in the last sentence).

Correction is required. See MPEP § 608.01(b).

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 1, 3-7 and 9-11 are rejected under 35 U.S.C. 102(a) as being anticipated by JP 2003-217858.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

The compounds represented by formulae I-6, I-7 and I-8 as shown on page 18 of the Japanese document are substituted 1,4-diazepine compounds of present formula (I) wherein X^1 and X^2 each represent an electron attractive group, R^1 and R^2 each represent a C_1 alkyl group, R^3

represents a hydrogen atom, and Z represents an aromatic hydrocarbon ring that is substituted with an electron donative group (a N-substituted amino group). Each of these compounds meets the limitations of a compound of formula (I) as defined in present claim 1 and further defined in present claims 3-6.

These compounds have the capability required by present claim 7, and are disclosed for use in the light-emitting layer of an organic electroluminescent device having the structure required by present claims 9-11. For example, see paragraphs [0069] and [0076]-[0077] in the machine-assisted translation.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-217858 as applied to claims 1, 3-7 and 9-11, and for the further reasons set forth below.

JP 2003-217858 does not disclose a compound of present formula (I) wherein at least one of X^1 and X^2 represents a cyano group, but does teach that a cyano group may be used as a substituent. For example, see paragraph [0054] in the machine-assisted translation.

Since the prior art teaches that the compounds may have a cyano substituent, it would have been a *prima facie* obvious modification to one of ordinary skill in the art at the time of the

invention to substitute a cyano group for one of the electron attractive groups in, for example, the compound of formula I-6.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2003-217858 as applied to claims 1, 3-7 and 9-11 above, and further in view of Matsuoka et al. (US 6,440,588 B1).

JP 2003-217858 does not disclose the condensation reaction claimed in present claim 8.

Matsuoka et al. disclose that a condensation reaction can be used to make substituted 1,4-diazepine compounds. For example, see the reaction scheme shown in column 7 of the patent wherein (IIa) and (III) react to form (II). It would have been a *prima facie* obvious modification to one of ordinary skill in the art at the time of the invention to make the substituted 1,4-diazepine compounds disclosed in JP 2003-217858 by other methods known in the art to be capable of making substituted 1,4-diazepine compounds, such as the condensation reaction disclosed by Matsuoka et al.

11. The references made of record and not relied upon are considered pertinent to applicant's disclosure.

Matsuoka et al. (US 2002/0091256 A1 and US 2003/0057826 A1) and Iwakuma et al. (US 2004/0086745 A1) disclose substituted 1,4-diazepine compounds, and teach that the compounds may be used in the light-emitting layer of an organic electroluminescent device. For example, see the abstracts of the two Matsuoka published applications, and see the compound represented by formula (A46) on page 14 of Iwakuma's published application. None of these

prior art published applications disclose or suggest a substituted 1,4-diazepine compound having the substituents and substitution pattern required for the substituted 1,4-diazepine compound of formula (I) as defined in the present claims.

In *Chemistry Letters* 33(2), Horiguchi et al. disclose substituted 1,4-diazepine compounds of present formula (I), and suggest that the compounds may be useful as emitters in electroluminescence devices. The article by Horiguchi et al. is not available as prior art, having been first published after the U.S. filing date of the present application. The article is relevant as showing that compounds having one alkyl group and one hydrogen at the positions corresponding to present R^1 and R^2 exhibit unexpectedly superior fluorescence intensity in solid state compared to a compound having two hydrogens at the positions corresponding to present R^1 and R^2 (such as disclosed in US 6,440,588 B1 to Matsuoka et al.).

12. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 6:30 a.m. to 4:00 p.m. Monday, Tuesday, Thursday and Friday, and every other Wednesday from 6:30 a.m. to 3:00 p.m.

The current fax number for Art Unit 1774 is (703) 872-9306 for all official faxes. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY
June 30, 2005

Marie R. Yamnitzky

MARIE YAMNITZKY
PRIMARY EXAMINER

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